ULTRASONIC BOARD P/N A-10344
IN-MACHINE CALIBRATION

1. Equipment required:
   1.1 An oscilloscope.
   1.2 A multi-meter (true RMS voltages up to 100 KHz).
   1.3 10 Ohm resistor, 5 Watt minimum.

   * *All following measurements are made with respect to circuit common TP1**

2. DC voltage verification:
   2.1 Turn on bonder main power and leave it idle at home position.
   2.2 Using DC volt meter, verify the DC voltages as follows:
      - At J3 pin 1 for -15 VDC
      - At J3 pin 3 for +15 VDC
      - At TP6 for -5 VDC
      - At TP7 for +5 VDC
      - At TP3 for -1.22 VDC
      - At TP5 for 0 VDC

3. Oscillator calibration:
   3.1 Disconnect transducer at connector J2.
   3.2 Connect the oscilloscope probe to TP2.
   3.3 Verify that the signal is a 5V square wave.
   3.4 Adjust potentiometer RT1 till the scope reads about 110 KHz (9.09uS).

4. Output voltage calibration:

   4.1 Connect a 10 Ohm, 5 Watt resistor across pin 1 and pin 2 of connector J2. Take care not to short across 2 pins.
   4.2 Connect AC volt meter and oscilloscope probes to TP5.
   4.3 Disconnect bonder interface connector J1.
   4.4 Connect a jumper from J1 pin 1 to TP7.
   4.5 Verify that the meter reads 0.024 Vrms., and scope shows a lean sine wave.
   4.6 Adjust RT4 to obtain the reading.
   4.7 Remove jumper and reconnect bonder interface connector J1.
   4.8 Program a selected channel to trigger full power (999) and bond time for about 1 second (999).
   4.9 While trigger the selected channel, verify that the meter reads 6 Vrms (16.97 Vp-p) and scope shows a clean sine wave. Adjust RT2 to obtain the reading.
   4.10 Connect AC volt meter and oscilloscope probes to TP4.
   4.11 While trigger the selected channel, verify that the meter reads 0.545 Vrms and scope shows a clean sine wave.

5. Final check:
   5.1 Remove 10 Ohm resistor at connector J2 and connect machine transducer to it.
   5.2 Remove all test leads.
   5.3 Press the machine reset switch or recycle machine main power, verify that there is no error message from the machine.

End of calibration